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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,132	09/12/2003	Mark Melvin Harbaugh	110003.00031.03AB131	7755
7590	09/07/2005		EXAMINER	
Susan M. Donahue Rockwell Automation, Inc. 1201 South Second Street Milwaukee, WI 53204			MCCLLOUD, RENATA D	
			ART UNIT	PAPER NUMBER
			2837	

DATE MAILED: 09/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/661,132	Applicant(s) HARBAUGH ET AL.	
	Examiner Renata McCloud	Art Unit 2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2003.
 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-26 is/are rejected.
 7) ☐ Claim(s) _____ is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>09/12/2003</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 19 is objected to because it includes reference characters which are not enclosed within parentheses.

Reference characters corresponding to elements recited in the detailed description of the drawings and used in conjunction with the recitation of the same element or group of elements in the claims should be enclosed within parentheses so as to avoid confusion with other numbers or characters which may appear in the claims. See MPEP § 608.01(m).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-6, 9-19, 22, 25, 26 are rejected under 35 U.S.C. 102(e) as anticipated by Lipo et al (US 6710495).

Claims 1,15: a method comprising sensing line power (fig. 8: 45, fig. 9:61,62);
identifying a zero sequence voltage component of the line voltages (col. 11:27-28);

rectifying (Fig. 8: 44) the zero sequence voltage component to generate a rectified signal (col. 11:3-39, the power has both fundamental and third harmonics, that are passed through the rectifier and supplied to the inverter); and using the rectified signal to identify the high frequency first harmonic component (col. 6:59-63; col. 7:11-15).

Claims 2,16: bandpass filtering (fig 9:68) the rectified signal (fig 9: 67; col. 11:54-12:3).

Claims 3,17: providing first and second bandpass filters (fig. 9:68) and filtering the rectified signal (67) using the filters to generate first and second signals, and mathematically combining the signals (71) to generate the first harmonic.

Claim 4: adding the first and second signals (Fig. 9:71).

Claims 5,18: first and second filters having first and second bandwidths including the injected voltage frequency (Fig. 9:68, it is well known in the art that if a frequency passes through the filter, the frequency is included in the filter).

Claims 6,19: the filters have center frequencies that are one half the filter bandwidth and greater than and less than the injected voltage component (Fig. 9:68, it is well known that the center frequency is one half of the bandwidth and that the bandwidth is a range above and below a frequency).

Claims 9-14,22,25, 26: a method comprising: identifying a zero sequence voltage component of the line voltages (col. 11:27-28); rectifying (Fig. 8: 44) the zero sequence voltage component to generate a rectified signal (col. 11:3-39, the power has both fundamental and third harmonics, that are passed through the rectifier and supplied to the inverter); first and second identical filters having first and second

bandwidths including the injected voltage frequency (Fig. 9:68, it is well known in the art that if a frequency passes through the filter, the frequency is included in the filter), the filters have center frequencies that are one half the filter bandwidth and greater than and less than the injected voltage component (Fig. 9:68, it is well known that the center frequency is one half of the bandwidth and that the bandwidth is a range above and below a frequency) and adding the signals (71) to generate the first harmonic (col. 6:59-63; col. 7:11-15).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lipo et al.

Claim 23: Lipo et al teach the limitations of claim 22. Referring to claim 23, they teach current sensors (Fig. 9:61,62) in linked to the supply line for identifying a derivative. They do not teach the sensor being a resistive element. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lipo et al to use a resistive element since it is well known in the art that a resistive element is used to sense order to sense current/voltage.

Claim 24: Lipo et al teach the limitations of claim 22. Referring to claim 24, they teach current sensors (Fig. 9:61,62) in linked to the supply line for identifying a zero sequence voltage and a rectifier (fig. 9:60, Fig. 8:44) for rectifying the zero sequence voltage. They do not teach the sensor being a resistive element. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Lipo et al to use a resistive element since it is well known in the art that a resistive element is used to sense order to sense current/voltage.

6. Claims 7,8,20,21, rejected under 35 U.S.C. 103(a) as being unpatentable over Lipo et al in view of Suelzle (US 5614770).

Claims 7 and 20: Lipo et al teach the limitations of claims 1 and 15. Referring to claims 7 and 20, they do not teach the filter arrangement having less than 10-degree phase shift within 2 percent of the injected voltage. Suelzle teaches a filter arrangement having less than 10-degree phase shift within 2 percent of the injected voltage (Col. 10:7-20, 0 degrees is less than 10 degrees and within 2 percent of the injected voltage). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus taught by Lipo et al to use a filter as taught by Suelzle in order to pass the fundamental frequency components.

Claims 8 and 21: Lipo et al and Suelzle teach the limitations of claims 7 and 20. Referring to claims 8 and 21, Suelzle teaches a filter arrangement having less than 4-degree phase shift within 1.5 percent of the injected voltage (Col. 10:7-20, 0 degrees is less than 4 degrees and within 1.5 percent of the injected voltage).

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

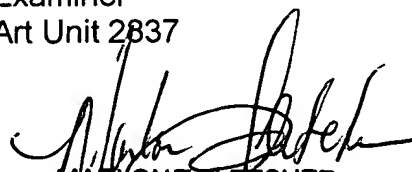
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Renata McCloud whose telephone number is (571) 272-2069. The examiner can normally be reached on Mon.- Fri. from 8 am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2800 ext. 4. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RDM

Renata McCloud
Examiner
Art Unit 2837


MARKONT T. FLETCHER
PRIMARY EXAMINER